Textile Technology Digest

Published Monthly
by the
Institute of Textile Technology
Charlottesville, Virginia

Vol. 1, No. 4 September, 1944

ABSTRACTS

NOTE: Periodical articles and patents covered in "Textile Technology Digest" are abstracted elsewhere, but not all in the same publication. These abstracts are not intended to compete with any other source, but to supplement other sources for two specific purposes:

1. To bring together the pertinent references in a form adapted to rapid scanning, abstracts being selected and written to meet the interests (broadly interpreted) of member mills.
2. To present the information concisely, in sufficient detail to provide a survey of progress in any branch of the industry or to help readers decide whether they need to consult the original reference.

No attempt is made to include operating details or other information needed for following up a new development. Tailoring the abstracts to fit the needs of cotton textile technologists is the primary purpose. The layout and arrangement are intended for easy reading, rapid scanning and ready finding of pertinent items. Abstracts may be clipped for mounting on index cards (an extra copy for this purpose will be supplied on request), or whole issues may be filed in a standard 3-ring binder.

The rudimentary classification employed here will be expanded as the abstracts increase in number and variety.

There will be restricted circulation of "Textile Technology Digest" to selected schools, libraries and other recipients who are not members of the Institute of Textile Technology. Suggestions are invited from readers, whether members or not.

ANALYSIS

WOOL ANALYSIS. H. J. Wollner, Louis Tanner and Irving Michelson, U. S. Bureau of Customs. *Am. Dyestuff Reporter 33,* 375-8 (1944). A rapid, reliable comparison method has since developed for determining the vegetable matter content of raw wool. It depends on correct identification and matching of the size and number of vegetable particles against carefully prepared photographic standards which are compared and matched against immersed samples in a liquid medium.

BLEACHING

BLEACHING SOLUTION. James D. MacMahon (to Mathieson Alkali Works, Inc.). USP 2 358 866, Sept. 26. Decomposition of aqueous acid chlorite solution with liberation of ClO_2 is inhibited by adding H_2O_2 to the solution.

CELLULOSE DERIVATIVES

VISCOSITY AND PARTICLE SIZE. W. Ostwald. *Kolloid-Z. 106,* 1-22, 1944. The relation between viscosity of a colloid in solution and its particle size very commonly follows either an S or an SS curve, with certain deviations which are illustrated by examples from the literature. The Staudinder linear curve is only a limiting case of these 2 forms and occurs only in exceptional instances. The reliability of viscometric molecular weight determinations is extremely limited by the multiplicity of functions and by the influence of solvents, hitherto not sufficiently considered. Data and curves are presented for degraded cellulose, nitrocellulose, cellulose acetate and a number of synthetic resins.

PLASTICIZER. Carl Opp (to Interchem. Corp.). USP 2 357 221, Aug. 29. Plasticizing cellulose acetate, cellulose acetate-propionate and the like with an alkyd resin derived from sebacic acid, succinic anhydride, ethylene glycol and glycerol.

FIBROUS CELLULOSE DERIVATIVES. Albert A. Houghton and Kenneth J. C. Luckhurst (to Imperial Chemical Industries Ltd.). USP 2 357 469, Sept. 5. A water-insoluble cellulose glycolic acid is isolated from its water-soluble salt by adding a concentrated acid and extracting the product with water.

SOLUBLE CELLULOSE. Sidney M. Edelstein. USP 2 357 731, Sept. 5. Cellulose or an alkali-stable cellulose ether is treated with an aqueous sodium zincate solution, which is then diluted with water until the cellulose or cellulose ether dissolves.

OXIDIZED CELLULOSE ESTERS. Charles R. Fordyce (to Eastman Kodak Co.). USP 2 358 064, Sept. 12. Cellulose acetate or a like ester is partially hydrolyzed and then oxidized with acid permanganate solution to form a product which is acetone-insoluble when washed in hard water but acquires acetone solubility and good adhesive properties when washed in hot soft water.

CELLULOSE ESTER DOPER. Wm. H. Hincke (to Eastman Kodak Co.). USP 2 358 069, Sept. 12. Acidproof inorganic filter aids used in clarifying cellulose ester acid dopes are cleaned with an anhydrous liquid containing at least 20% acetic anhydride and 1-10-% of an acetylation catalyst.

CELLULOSE ESTERS. Carl J. Malm (to Eastman Kodak Co.). USP 2 358 080, Sept. 12. Cellulose is prepared for esterification by treating it with dilute (under 1%) H_2SO_4 in propionic acid. The conditions are such as to sensitize the cellulose to esterification with acetic or like acids.

CELLULOSE RIBBONS. Thomas F. Banigan and Roy E. Hartman (to E. I. du Pont de Nemours & Co.). USP 2 358 376, Sept. 19. Regenerated cellulose ribbons are formed by extruding a tube of viscose, continuously coagulating, dilating the coagulated tube with an air jet and slitting the tube lengthwsie while dilated to form a flat ribbon which is then passed into a bath to complete the regeneration of the cellulose.

TREATING TEXTILES. Henry Dreyfus, Robert W. Moncrieff and Harold Bates (to Celanese Corp. of America). USP 2 358 387, Sept. 19. Cellulose derivatives, filaments, yarns or fabrics are heated above 100°C in a liquid acylation medium containing the mixed anhydride of a polycarboxylic and a monocarboxylic acid.

CELLULOSE DERIVATIVE GEL. Peter R. Wenck (to Dow Chem. Co.). USP 2 358 549, Sept. 19. A hydrogel medium for cultivating micro-organisms includes 1-2% of a water soluble salt of cellulose glycolic acid and 0.25 to 3% of agar.

STERILIZER. Samuel D. Goldberg and Julian R. Reasenberg (to G-M Chem. Co., Inc.). USP 2 358 570, Sept. 19. A package for an article requiring a sterilized end has a Cellophane envelope with a closed end and a heat-sealable open end.

THERMOPLASTIC. Drury N. Davies (to Cellomold Ltd.). USP 2 358 963, Sept. 26. Cellulose acetate in granular form is provided with not more than 0.5% of a lubricant dispersed over the granules as a fine powder making surface contact only, i. e. not incorporated within the thermoplastic particles.

NITROCELLULOSE. Cellulose Products Dept. Hercules Powder Co., Wilmington, Del., 1944. Reviewed in *Am. Machinist 88*, No. 19, 151 (1944).

CHEMICALS

STARCH ADHESIVES. Lee T. Smith and R. M. Hamilton, Eastern Regional Research Laboratory, USDA. *Chem. Eng. News 22*, 1482-4, 1494 (1944). Starch adhesives are derived from relatively cheap annual crops and are easy to package and ship without any health or industrial hazards. Through selection of plant sources, controlled variations in chemical treatment, and blending with plasticizers or modifiers a wide variety of starch adhesives for many industrial uses can be formulated. Bibliography (147 references).

DESIZING AGENTS. L. C. Trayner, Aktivin Corp. *Textile Bull. 66*, No. 10, 20, 22; No. 11, 21-2, 34 (1944). Desizing agents may be classified as acids, enzymes, and chlorine compounds having the property of solubilizing starches and vegetable gums. Some enzymes are specific for starches and vegetable gums while others are especially effective with proteins but may also solubilize starches. Methods of application are described.

COATED FABRICS

LUSTROUS COATINGS. Walter Pense, Werner Asch and Hermann Stärk. USP 2 356 879, Aug. 29, (vested in the Alien Property Custodian). Lustrous coatings are produced on leather, vulcanized fiber, coated fabrics or paper board by applying a salt of the acid formed by interpolymerizing maleic anhydride and vinylbutyl ether, then glazing the coated material

AIRCRAFT FABRIC. Darwin B. Grossman (to Roxalin Flexible Finishes, Inc.). USP 2 356 927, Aug. 29. A fabric covering for an aircraft part is made of a woven fabric, prepared from extruded organic filaments and shrunk until tight, then covered with at least one coating of a cellulosic dope.

ABRASIVE CLOTH. Joseph H. Kugler and Byron J. Oakes, (to Minnesota Mining & Mfg. Co.). USP 2 357 335, Sept. 5. Flexible abrasive sheet material for polishing glass, marble or the life is made by impregnating a fabric base with a thermoplastic which may be a polyvinyl acetal, a substituted butadiene polymer or a cellulose dederivative, applying a synthetic binder over the impregnating composition and then applying abrasive grains to the coated cloth.

ADHESIVE TAPE. Raymond E. Reed (to Kendall Co.). USP 2 358 760, Sept. 19. An unwoven textile sheet of fibers, some having binder characteristics and others not, is bonded together by the binder fibers and given different surface characteristics by providing different proportions of the binder fibers on opposite surfaces of the web; a pressure-sensitive adhesive is then applied to one face of the resulting sheet.

ABRASIVE SHEETS. Byron J. Oakes (to Minnesota Mining and Mfg. Co.). USP 2 357 350, Sept. 5. Flexible abrasive sheeting for polishing glass, marble or the like is made by impregnating a woven fabric with an elastic waterproof thermoplastic synthetic resin, applying a grit-bonding coat of a thermosetting phenolic resin and then applying abrasive particles.

LAMINATED FABRIC. H. Meyer (to Hart Productions Ltd.). Brit. P. 559 075, 1944. A fabric is impregnated with water-insoluble but water-absorbent inorganic gel, then with a solution of a thermoplastic synthetic resin or chlorinated rubber. This layer is then bonded to 1 or 2 layers of fabric under heat and pressure.

GEON RESINS AND PLASTICS. Tech. Bull. PM2, B. F. Goodrich Co., Akron, O., 1944. Reviewed in *Chem. Industries 55*, 422 (1944).

3-M ADHESIVE DATA. Minnesota Mining & Mfg. Co., St. Paul, Minn., 1944. Reviewed in *Chem. Industries 55*, 422 (1944).

DYEING

DIRECT DYEING. George Broun. *Textile Bull. 66*, No. 12, 37-8; *67*, No. 2, 35-7 (1944). Application of direct dyes to cotton, viscose silk and their blends, with or without acetate silk, wool or artificial protein fibers, is discussed with respect to the use of padders and the continuous piece goods dyeing range. Starch in the pad liquor sometimes helps to prevent box markings, and other defects. Many developed colors are improved by padding and jigging.

EMULSION PRINTING. Olive-Sue Linkletter, Aridye Corp. *Textile Age 8*, No. 8, 61-2, 64 (1944). Pigmented resin emulsions give excellent results in textile printing and dyeing, with exceptional sun-fastness and sharpness of design. While many resins are inherently sunfast the fastness of the printed fabric depends also in large measure on the resin binder. Pigments have

been applied by printing or pad dyeing to the various rayons and to Vinyon and nylon; even Fiberglas has been successfully colored with pigment emulsions.

RED DYE. C. D. Mell. *Textile Colorist 66,* 355-6 (1944). The East African mulberry brush *(Cardiogyne africana)* yields a yellowish red dye and occurs in enormous quantities but has not been exploited commercially.

TEXTILE INKS. H. Peters. *Textile Colorist 66,* 315-6 (1944). Recent patent literature relating to fluids for marking textiles is reviewed.

DYEING RAYON. Technicus. *Silk & Rayon 66,* 18, 890, 893 (1944). Soap can be used to good effect when preparing rayon for dyeing and particularly for good results in levelling. In many cases a combination of soap and a sulfated fatty alcohol is superior to soap alone.

FLUORESCENT DYES. Hermann Kiegenspeck, Marienapotheke, Augsburg. *Kolloid-Z. 106,* 62-4, 1944. The first production of completely polarized fluorescence has been achieved by dyeing ramie fibers with highly fluorescent dyes in such a way that the dye particles are oriented lengthwise in the same direction as the fiber micelles. This gives dichroic dyeings on the ramie fiber.

EMULSION FOR PRINTING. Alfred L. Peiker (to Am. Cyanamid Co.). USP 2 356 794, Aug. 29. A composition for sharply defined laundry-fast printing by the intaglio method on fabrics, without stiffening the fabric, contains an alkyd resin and a urea-formaldehyde resin, both being water insoluble and thermosetting, and a water-insoluble cellulose ether in an organic solvent dispersed in water as an oil-in-water emulsion.

PRINTING PASTES. Swanie S. Rossander, Chiles E. Sparks, and Carl W. Maynard, Jr. (to E. I. du Pont de Nemours & Co.). USP 2 357 226, Aug. 29. An aqueous printing paste contains, in addition to an azo dye component, a noncoupling aryl carbozylic acid or an anhydride or metal salt thereof.

PRINTING. Herman A. Smith (to Rice Barton Corp.) USP 2 358 112, Sept. 12. A machine for printing textiles has a motor driven roll for the fabric to be printed and for a gray cloth backing, moving at a speed depending on roll size, and a speed reference unit moving in an invariable speed ratio with respect to the fabric speed together with an automatic control device so that fabrics and backing cloth are held under uniform tension.

PRINTING. Stephen B. Stafford and Herman A. Smith (to Rice Barton Corp.). USP 2 358 114, Sept. 12. A machine for printing textiles has a motor driven roll for moving cloth through the printing zone and a motor driven supply roll, with automatic speed for holding the cloth under controlled tension.

TECHNIQUE OF DYEING RAYONS. Textile Manufacturer Monograph No. 3, Emmott and Co. Ltd., Manchester 20, England, 1944. 67 pp. price 2s. 6d.

FABRICS

POPLIN. Anon. *Am. Wool and Cotton Reporter 58,* No. 36, 7, 9, 14 (1944). A poplin is described which has a warp of spun viscose and acetate filament while the filling is a single spun yarn. A staple fiber is used which is larger than the ordinary size. Details of twist and the cost of weaving on automatic looms are considered.

GAS PERMEABILITY. Anon. *Tech. News Bull.* No. 328, 51-8 (1944). Balloon fabrics are now made in much greater variety than in the first World War. Test methods in use at the Nat'l Bureau of Standards are discussed. Neoprene has low gas permeability.

BLANKET FABRICS. Robert Amory, Nashua Mfg. Co. *Textile Age 8,* No. 8, 74, 76 (1944). Recent advances in the technology of blanket design and manufacture indicate that construction rather than the nature of the fiber is the maior factor in comfort (heat insulating quality). The Purrey rayon blanket was the first to be designed specifically for slow permeation by air.

NYLON NETTING. W. G. Lawing. *Textile Bull. 67,* No. 2, 25-6 (1944). Nylon netting has certain points of superiority and there are many possibilities for weaving and finishing plants in processing netting, whether of cotton or nylon. Nylon netting or screening is generally sized with polyvinyl acetate. Cotton may be able to compete with nylon for this type of fabric if properly treated with synthetic size or with resins.

FURNITURE COVER. Exa G. Reed (to Wingfoot Corp.). USP 2 356 948, Aug. 29. Covering flat tops of articles of furniture with a woven fabric of stretched rubber hydrochloride, fastening the edges of the fabric, and shrinking the fabric to the article by heat.

THERMOPLASTIC HORSEHAIR FABRIC. John Wrightington. *Textile Age 8,* No. 7, 74 (1944). A fabric with horsehair weft has a warp with 2 cotton ends to 1 acetate silk (thermoplastic) end; thus it is 20 wt.-% acetate silk and can be bonded to another fabric by heat, aided by a plasticizer such as dimethoxyethyl phthalate.

BLANKET. Gustav Berg (½ to Eric Low-Beer). USP 2 357 164. Aug. 29. Blankets are made with two outer fabric layers each loosely woven of warps and wefts and woven together along intersecting lines, and an intermediate layer consisting solely of binding-yarn warps under tension as compared with the two outer layers.

NETTED FABRIC. Wilfrid M. Boulais (to Boulais Machine Co.) . USP 2 357 308, Sept. 5. A machine for making netted fabrics pulls warp and spool threads, each in spaced horizontal rows and spaced vertical columns, and has a device for shifting the spool threads with respect to the warp threads. The spool threads can also all be moved entirely out of the field of warp thread for packing purposes.

FELTED FIBERS. Carleton S. Francis, Jr. (to Sylvania Industrial Corp.). USP 2 357 392, Sept. 5. A felted fibrous product is made by dispersing adhesive organic plastic material into a gas in the form of discontinuous fibers, dispersing nonadhesive organic fibers into the same gas and collecting fibers on the surface of a perforated mold while applying suction underneath the mold, then pressing the mixed fibers.

HANDLE GRIP. Tracy S. Park. USP 2 357 491, Sept. 5. A handle grip for golf clubs or the like, has a resilient cushioning layer to which is vulcanized a continuous tubular lining of fabric with its threads on the bias.

PILLOW COVER. Abraham Levy (Fine Art Apron Co., Inc.). USP 2 357 789, Sept. 5. An air-tight pillow cover for prevention of allergy has an air-tight closure flap and a filter through which air will pass under pressure but which is not permeable to the particles in the pillow producing allergic reactions.

HEAT REFLECTING FABRIC. Emanuel Scheyer, USP 2 357 851, Sept. 12. Fabric to be used in heat insulation, contains synthetic fibers, having incorporated therein flakes which impart heat-reflecting properties to the fabric.

NET. Murray G. Grabowsky (to R. J. Ederer Co.). USP 2 357 890, Sept. 12. A net material has an edge with tabs placed in the meshes of the net and folded with projecting ends so that the tabs can be stitched beyond the edge of the net mesh.

PILE FABRICS. Whitworth F. Bird (to Collins and Aikman Corp.) USP 2 358 204, Sept. 12. A sealing ply is calendered on one side of a reenforcing fabric, then a ply of blowing stock on the other side; a thin anchoring coat is applied to the sealing ply, pile-forming flock particles are sprinkled over the anchoring coat, the fabric is vibrated and finally heat treated.

FLOCK FABRIC. Glen S. Hiers (to Collins & Aikman Corp.). USP 2 358 227, Sept. 12. Several adhesive-coated base fabrics are flocked at the same time by setting up a pulsating (high frequency) electrostatic field and passing pairs of coated fabrics (with coated sides facing each other) between the electrodes while introducing flock fibers into the electrostatic field.

MAKING FABRICS. Robert M. Jones and Paul B. West (to Saco-Lowell Shops). USP 2 358 330, Sept. 19. Unwoven fibers are formed into fabrics by preparing separate thin webs, cementing the webs together edge to edge with an adhesive and adhesively joining the fibers to each other to form a single thicker web from several thin webs.

PILE FABRICS. Victor A. Victor. USP 2 358 368, Sept. 19. Pile fabrics are produced in a continuous cycle by feeding a backing sheet to a pile-forming station where first an adhesive and then the pile-forming fibers are applied, with means for speeding the fabric through the pile-forming station and cutting off the leading edge portion then moving the severed portion to the next stage in the cycle.

WEBBING. James A. Hendley (to Russell Mfg. Co.). USP 2 358 638, Sept. 19. Textile webbing is made with a series of lengthwise overlapping pockets, each having 2 side and 2 end walls and a bottom, the end of the end walls being interwoven with alternate side strips.

TIRE CORD. Wingfoot Corp. Brit. P. 558 908, 1944. A machine which makes endless bands of rubberised tire cord in any desired width has an endless flexible carrier around which the bands of fabric are built and a second endless carrier which can be shifted into and out of cooperating position.

BONDING FABRICS. R. P. Roberts and K. Jones (to British Celanese Ltd.). Brit. P. 558 955, 1944. Fabrics and other cellulosic materials are bonded together by applying to the surfaces a mixture of polyvinyl alcohol, aldehyde, and a catalyst of acetalisation, then bringing the surfaces together and effecting the reaction.

HOSPITAL GAUZE. American Cyanamid Co., Ltd., Brit. 559 027, 1944. Hospital gauze is impregnated with petroleum jelly or lanolin and contains sulfanilamide applied in an emulsion.

FABRIC ARTICLES. A. S. Brown (to Brown & Adam Ltd. and Imperial Chem. Industries, Ltd.). Brit. P. 559 235, 1944. Shaped articles are made by wrapping a temporary tubular form with fabric or yarn which has been impregnated with resin, forming a liquid-tight protective envelope and shaping the assembly under internal and external pressure.

FIBERS

STAPLE FIBER. Anon. *Chem. Met. Eng. 51,* No. 8, 128-31 (1944). An illustrated flowsheet showing steps in the production of viscose staple fiber.

CORDAGE. Anon. *Fibres, Fabrics & Cordage 11,* 300-2 (1944). The relative merits of rope walks and house machines in making hemp ropes are discussed.

JUTE RESEARCH. Anon. *Fibres, Fabrics & Cordage 11,* 304-5 (1944). The annual report of the Indian Central Jute Committee is reviewed with respect to problems such as spinning flax on jute machinery, cheap treatments for jute, yarn and fiber treatments, the relation of the alkali boil to wet strength, twine and baling rope from jute, knitted jute, and the manufacture of laminated fabrics.

SYNTHETIC TEXTILES. Anon. *Modern Plastics 22,* No. 1, 91-7, 184, 186, 188, 190, 192 (1944). The prediction that synthetic fibers will completely displace natural fibers is critically analyzed and some uses of synthetic fibers such as nylon are reviewed and illustrated.

FIBER STRUCTURE. Anon. *Monsanto Mag. 23,* No. 5, 8, 9 (1944). Photographs made with the electron microscope are shown for paper pulp fibrils, cotton fibrils, wool, Resloomed wool, resin-coated wool and Syton-treated wool.

SYNTHETIC FIBERS. Anon. *Silk & Rayon 18,* 815 817, 899 (1944). The literature of synthetic fiber-forming compounds is reviewed with particular reference to nylon, biuret derivatives and several fibers in which other urea derivatives are used instead of biuret.

LONG STAPLE RAYON. Anon. *Silk & Rayon 18,* 954 (1944). Long staple rayon opens to the designer a wide range of materials with potential applications in garments for men and women, neckwear, gloves, handbags and other articles.

MANILA HEMP. Earl N. Bressman, Inter-American Institute of Agricultural Sciences. *Textile Bull. 66,* No. 12, 23-24, 46 (1944). Cultivation of abaca fiber (Manila hemp) in Central America is now under way and although abaca is highly sensitive to plant diseases there are two disease resistant varieties which are yielding more in Central America than they originally did in the Philippines.

STRUCTURE OF NYLON. W. Broser, K. Goldstein and H. E. Kruger, Institut für Zellwollforschung. *Kolloid-Z 106,* 187-201, 1944. Tabulated data and diagrams show the relation between chemical and colloidal structure and the physical properties of chain polymers such as nylon and other filament-forming high polymers.

PROTEINS AND WATER ABSORPTION. Henry B. Bull, Northwestern Univ. *J. Am. Chem. Soc. 66,* 1499-507 (1944). Absorption of water vapor by nylon (stretched and unstretched), silk wool, zein, elastin, collagen and several globulins has been measured at 25 and 40° C. as a function of water vapor pressure. The Brunauer-Emmett-Teller theory of multilayer adsorption agrees with the observed results.

PROCESSING FLAX. S. A. G. Caldwell. *Textile Mfr. 70,* 349-51 (1944). Some possibilities for new equipment and methods in studying the drawing and roving of flax are described and illustrated. High speed drawing and automatic tramping are among the possible improvements.

CELLULOSE FIBER STRUCTURES. H. Dolmetsch, E. Franz and E. Correns, Zellwolle- und Kunnstseide-Ringes G. m. b. H. and Zellulose-forschugszentrale Peschelmühle. *Kolloid-Z 106,* 174-87, 1944. Discovery of a new structural principle for all axially oriented cellulose fibers led to the theoretical prediction of an ultimate structural unit and it has been possible to visualize these units by solution and swelling processes with cellulosic wood fibers. These structural units fulfill all the requirement of the micelle or crystallite. Their length is of the same order of magnitude as the chain length of the macromolecular components of the corresponding nitrocellulose (viscometric method) and their width corresponds to the diameter of a fibril.

FIBER BLENDING. A. C. Robert, *Textile Age 8,* No. 7, 36, 38, 40; No. 8, 65, 68-9, 72 (1944). Blending characteristics of natural and synthetic fibers are discussed with particular reference to nylon and wool. The low moisture regain of nylon renders it particularly susceptible to accumulation of static electricity, thus necessitating strict humidity control. Blends can be dyed with acid dyes but in stock dyeing it may be better to dye the nylon and wool separately before blending. In its response to finishing agents nylon has a general resemblance to wool.

WASTE DISPOSAL. E. T. Roetman, Am. Viscose Co. *Southern Power & Industry 62,* No. 8, 86-9 (1944). Stream pollution is prevented at the Front Royal (Va.) rayon plant by systematic treatment of spent caustic, spinning solutions, finishing baths and other liquid affluents. Alkaline, acid and sulfide wastes are treated to make them harmless.

PROCESSING WOOL. W. Tabor Robinson. *Textile Bull. 67,* No. 1, 18, 20, 46 (1944). Wool is being successfully processed on cotton machinery but only by those operators who have given close attention even to apparently insignificant details. The sensitivity of wool to moisture and heat demands particular attention; the tendency for laps to split can be overcome by a suitable mechanical device or by using a roving. Card settings for wool stock are ordinarily different from those for cotton. Special care is necessary to avoid accumulation of static electric charges.

STAPLE FIBER BLENDS. Srinagabhushana and Nazir Ahmad, Indian Central Cotton Committee, Technological Laboratory. *Textile Mfr. 70,* 345-8 (1944). Effects of small additions of rayon staple fiber to some Indian cottons are reported, based on spinning tests. Factors governing yarn strength and breakage, evenness and and other qualities are considered.

VISCOSE SOLUTIONS. M. Takei, Pazmany-Peter-Universität, Budapest. *Kolloid-Z. 106,* 30-5, 1944. During the ripening period of a viscose solution true solvation increases and the particle-size decreases. The principle change in ripening is partial disorientation of the oriented lattice structure of alkali cellulose. A ripened viscose has a secondary structure which is not present in the initial viscose. The evidence indicates that the viscose particles in a commercial spinning solution have a fringed micellar structure in a lattice arrangement.

AGAVE FIBERS. A. C. Whitford. *Textile Age 8,* No. 7, 48, 50-1; No. 8, 56, 58, 60 (1944); The fibers of 5 varieties of *Agave* are described; they range in diameter from 9.9 to 33.3 microns. Practically all the fiber is used in brush manufacture cordage and bagging.

WOOL AND WOOL SUBSTITUTES. J. F. Wilson, Univ. of California. *Nat'l Wool Grower 34,* No. 8, 27-8, 34-7 (1944). Wool faces competition from rayon staple fiber; artificial protein fibers from milk, soybeans and peanuts (Lanital, Aralac and others), and nylon. None of these can match all the properties and merits of wool. A program of publicity and research is urged.

SYNTHETIC FIBERS. Joseph J. Reis Jr. (to Pittsburgh Plate Glass Co.). USP 2 356 886. Aug. 29. A spinning solution for drying filaments from an organic plastic is subjected to gas pressure which is alternately raised and lowered as the solution is forced through the spinneret.

PEANUT FIBER. John P. Dickson and William Sever (to Imperial Chem. Industries Ltd.). USP 2 358 219, Sept. 12. An alkaline solution of peanut globulin at its isoelectric region is ripened, then spun into a coagulating bath containing sodium sulfate and sulfuric acid at 40°C.

PROTEIN FIBERS. Albert C. Chibnall and Kenneth Bailey (to Albert C. Chibnall and Wm. T. Astbury). USP 2 358 383, Sept. 19. Fibers, threads and films are produced from vegetable globulins and an aqueous solution of urea, an amide thiocyanate or an alkyl aminoformate under such conditions that the globulin is first denatured and then formed into filaments.

PEANUT FIBER. David Traill (to Imperial Chem. Ltd.). USP 2 358 427, Sept. 19. A solution of peanut protein in dilute alkali is extruded into a coagulating bath and the filament is drawn from the bath 3 to 8 times faster than the rate of extrusion; it is then hardened to render it resistant to hot water and acid dye-baths.

CLEANING COTTON. H. S. Greenwood. Brit. P. 559 122, 1944. A magnetic separater for removing bits of metal from cotton or waste in the opening machine or in conveying waste has magnets placed in such a way to affect the lower layer by one pair of magnets and the upper layer by another pair.

COLORED GLASS FIBERS. F. L. Barrett and H. Carlton (to Bleachers' Association). Brit P. 559, 329, 1944. Glass fiber or fabric is colored by coating it with a thin film of resin or cellulosic substance which is not itself colored but is receptive to dyes.

PLASTICIZING NYLON. F. T. Peters (to E. I. du Pont de Nemours & Co.). Brit. P. 559 514, 1944. Plasticized nylon is made by incorporating therein or in the yarn or fabric a carboxylate ester of a polyhydric alcohol and an acid having at least 6 C atoms.

VELON: The Miracle Material for the World of Tomorrow. Firestone Industrial Products Co., Akron, Ohio, 1944; 12 pp. Gratis. Reviewed in *Rubber Age 55,* No. 5, 516 (1944).

FINISHING

FINISHING KHAKI. Anon. *Am. Wool and Cotton Reporter 58,* No. 34, 11, 13-14, 18-19. (1944). In finishing stock dyed khaki (30-oz. melton) tacking helps to prevent wrinkles in the mill and washer. Suggestions are presented for soaping, fulling, washing, extracting, drying and shearing the cloth.

RAYON LOCKNIT. *Anon. Silk & Rayon 18,* 992-4 (1944). An economical method for drying and finishing rayon locknit is to use a hot air stenter of one of the recent improved designs which present distortion of the fabric. Hosiery finishing works which do not have a stenter may use a machine which permits successive drying, setting and calendering, or they may dry with a hot air blower and then calender. Careful handling is essential and calender rolls should be fabric-covered to avoid giving the fabric a glazed appearance.

PARAFFIN OXIDATION PRODUCTS. Ludwig Mannes, Henkel und Cie. *Chemie 57,* 6-11 (1944). By-products from the synthesis of fatty acids and soaps by oxidizing paraffin wax include alcohols, ketones, acids and residues. Some of these products are useful for sizing, finishing or water-proofing textiles or paper.

CLOTH FINISHING PRESS. David Gessner (to David Gessner Co.). USP 2 357 185, Aug. 29. A cloth finishing press has a rotating pressing cylinder above a non-rotating ironing member and a device for raising and lowering the cylinder.

TEXTILE FINISHING. Jack T. Thurston (to American Cyanamid Co.). USP 2 357 272, Aug. 29. A dispersion for use in textile finishing contains an alkylated (butyl or lower) methylol melamine and an alkyl compound (heptyl or higher) having an amide group with or without an alkylol substituent.

EMULSION FINISH. Donald W. Light and Alden D. Nute (to American Cyanamid Co.). USP 2 357 526, Sept. 5. An emulsion in which the continuous phase is an alkaline casein solution and

the disperse phase is a benzoic acid modified alkyd resin is used to impart a finish like that of starch and give a full crisp hand to textiles.

FINISHING CLOTH. Arnold Eddy (½ to Hilda W. Striker). USP 2 357 730, Sept. 5. During finishing the cloth is handled by winding it on a tube mounted on a cloth beam, removing the resulting roll to a cloth treating machine having a cloth beam, sliding the roll onto the cloth beam of the treating machine and treating the cloth therefrom while winding it on another cloth beam.

SOFTENING TEXTILES. Jakob Link and Gaston Jaccard (to Sandox Ltd.). USP 2 359 043, Sept. 26. A wax-like product soluble in water and having excellent softening properties for textiles is the formate of the monolaurate ester of octadecyl diethanolamine.

TREATING FABRICS. Harry Corteen (to Tootal Broadhurst Lee Co., Ltd.). USP 2 359 086, Sept. 26. A natural tendency to fold along a specified line is imparted to fabrics such as collars by applying a viscous liquid stiffening agent along both sides of the fold lines, pressing the folded fabric to expel more of the stiffening agent from the crease-line than from adjacent areas and setting the stiffening agent.

FIBER TREATMENT. J. H. McGregor (to Courtaulds Lt.). Brit. P. 558 892, 1944. Cellulosic fibers are impregnated with an equeous solution of a guanidine salt or a monalkyl ester of an aliphatic dibasic acid to impart a soft silky handle. Additional treatment with formaldehyde causes the salt to impart also the dyeing properties of wool. A suitable compound is prepared, for example, by treating dioctyl succinate with guanidine carbonate.

HAZARDS

ELECTRIC FIRES. Anon. *Silk & Rayon 18,* 1008-9, 1011 (1944). Electrical causes of fire in textile mills are reviewed and precautions for fire prevention are discussed. Correct use of a star-delta starter is helpful in decreasing the fire hazard.

INSTRUMENTS

ELECTRON MICROSCOPE. Robert G. Picard, RCA Victor Division. *J. Applied Phys. 15,* 678-84 (1944). The RCA electron diffraction adapter for electron microscopes permits 1% accuracy in calculating lattice spacings. Tests were made with thin films of formvar and of nitrocellulose.

AUTOMATIC CONTROL ENGINEERING. Ed. Sinclair Smith. McGraw-Hill Book Co., New York City, 1944; 369 pp. Price $4.00. Reviewed in Power *83,* 629 (1944).

Identification of Organic Pigments by Spectrophotometric Curve Shape. R. Abbott and E. I. Stearns. Calco Tech. Bull. 754, American Cyanamid. Co., New York City, 1944. Reviewed in Textile Colorist *66,* 386 (1944).

Spectrophotometry and the Colorist. E. I. Stearns. Calco Tech. Bull. 756, American Cyanamid Co., New York, 1944. Reviewed in Textile Colorist *66,* 386 (1944).

KNITTING

KNITTING MACHINE. Paul Schmidt (to Textile Machine Works). USP 2 357 361, Sept. 5. A multisection full-fashioned knitting machine has a device for eliminating the cumulative defects of expansion and contraction.

KNITTING HOSIERY. Robert E. Davis (to W. B. Davis and Son, Inc.) USP 2 357 506, Sept. 5. In knitting stocking tops on a circular knitting machine a relatively inelastic thread is supplied at one feeding station and a relatively elastic thread at another, under light tension so that the elastic thread is engaged on the hooks of alternate needles and at the back of the intervening needles.

KNIT FABRICS. Bernard Thornton Cole (to B. Toone (Nottingham) Ltd.). USP 2 357 630 with Sept. 5. A knitted garment has a pocket with suture lines wherein cut ends of the yarn are present, and stitch formation restricted to the suture lines and arranged to lock the cut ends against pulling out.

KNITTING MACHINE. Ralph N. Toone (to B. Toone (Nottingham) Ltd.). USP 2 357 708, Sept. 5. An attachment for knitting machines insures the engagement of the yarn by a predetermined needle upon its presentation for reintroduction into the fabric.

KNITTING MACHINE. Edward Vossen and Nathan J. Tellerman (to Stop-Motion Devices Corp.). USP 2 357 712, Sept. 5. A press-off device and hole detector for knitting machines has a sliding finger mounted on a swivel extending at right angles to the axis of the tubular knit fabric, for detecting holes in the fabric.

STOP MOTION HEAD. Edward Vossen and Nathan J. Tellerman (to Stop-Motion Devices Corp.). USP 2 357 714, Sept. 5. A knitting machine has a stop-motion head mounted above the knitting machine head; there are detector units with the yarn guide and air blast nozzles on the detector units for blowing away fuzz and lint.

SELVEDGE FORMATION. Peter Schoenster (to Alfred Hofmann, Inc.). USP 2 357 852, Sept. 12. An improved attachment on machines for knitting single unit full-fashioned stockings utilizes dividers, most of which are of the ordinary type but a few of which are of a special type adapted to form a selvedge in the reinforced widened heel of the stocking blank.

CIRCULAR KNITTING MACHINE. Henry H. Holmes (to Wildt and Co., Ltd.). USP 2 358 640, Sept 19. A circular knitting machine has 2 axially opposed needle cylinders with double-ended needles in each cylinder and a carrier which is concentric with the cylinders while thread guides independently movable radially in the carriers supply design threads to the needles.

CIRCULAR KNITTING MACHINE. Henry H. Holmes and Alfred P. Saunders (to Wildt and Co. Ltd.). USP 2 358 641, Sept. 19. A circular knitting machine of the type which operates periodically with rotary reciprocating motion to produce tubular knit fabrics with pouches has a series of independent needles, associated with knitting butts, and a main knitting cam system left on the butts for circular knitting.

WELT TURNER. H. W. and E. Start (to George Blackburn & Sons Ltd.). Brit. P. 559 434, 1944. A welt turner for straightbar knitting machines provides a simple method of disengaging welt hooks from the loops, before the loops are restored to the needles by a set of transfer points.

LAMINATES

LAMINATED SHEETS. Hans Leemann, Alfred Rheiner and Werner Hagenbuch (to Sandoz Ltd.). USP 2 357 962, Sept. 12. Cellulose fibers are esterified with acetic or a like acid, then sheeted while the fibers are swollen and a small amount of the esterifying acid remains.

MACHINES

COMBING MACHINE. W. H. Robinson, *Wool Record and Textile World 66*, 276-7, 279, 281 (1944). The popularity of the Noble comb is due chiefly to high productive capacity, simplicity and adaptability. These points of superiority are now threatened by improved rectilinear designs, permitting wider models with increased output capacity. Suggestions are offered for improvements in postwar design.

TRANSPORTING FABRICS. Edwin G. Hellyar (⅞ to Miriam J. Hellyar and ⅛ to Miriam E. Hellyar) . USP 2 356 787, Aug. 29. A frame for transporting fabrics has 2 cross-shaped arms with lengthwise slots and hook-carrying plates in the slots, with a rod between the 2 arms.

FILAMENT CUTTER. John J. Gregory (to Pittsburg Plate Glass Co.). USP 2 356 841, Aug. 29. Bundles of filaments, which vary periodically in thickness, are cut into sections by passing the filaments over a drum where the varying filament thickness actuates a control, so that the cutter operates at intervals regulated by the changes in thicknes of the filaments.

YARN WINDER. Albert W. Keight (to Celanese Corp. of America). USP 2 357 406, Sept. 5. A machine for making headless yarn packages has a driven spindle and a traverse ring, through which a chaser motion can be imparted while the spindle can also be reciprocated to superimpose a builder motion on the chaser motion.

THREAD GUIDE. Leslie M. Ballamy and Richard H. Sheepshanks. USP 2 357 716, Sept. 5. A guide for conducting thread from a rotating cop to the reciprocating needle of a sewing machine as a flexible thread receiving element, which is fixed above the cop but is free below its fixed point to follow the thread.

CARDING MACHINE. Prentice M. Thomas and John H. Barton. USP 2 357 962, Sept. 12. An improved drawing and cleaning attachment for cards is interposed between the calendar and doffer rolls. It has a vertical arm attached to the card and a horizontal arm with parallel channels in the top and slots in the bottom of the channel.

COMBER GUARD. D. Pierrepont (to Platt Bros. & Co. Ltd.). Brit. P. 558 948, 1944. A guard which covers all the mechanism at the front of the comber is locked when the machine is running and cannot be opened, but when open prevents the machine from being started.

WINDER. British Celanese Ltd. Brit. P. 559, 066, 1944. An improved machine winds fabrics in such a way as to avoid piling up of the selvedges. This is done by giving the fabric a side to side movement as it winds on the roll.

CLEARING COMBERS. D. Pierrepont (to Platt Bros. & Co., Ltd.). Brit. P. 559 125, 1944. Revolving clearers for removing waste from the leather-covered top detaching rolls of combers are noiseless, free from vibration and subject to practically no wear of moving parts.

PACKAGING

RUG PACKAGE. Neal C. Pike (to Carthage Mills, Inc.). USP 2 357 908, Sept. 12. Rugs are rolled and arranged in a tubular package in such a way that the inner rolls are individually wrapped and can be removed without disturbing outer rolls, the entire assembly being enclosed in a tubular container.

PROCESSING

MERCERIZATION. Sister Virginia Heines. *J. Chem. Ed. 21*, 430-3 (1944). Historical note on John Mercer's discovery of mercerization in 1844, a half century ahead of its commercial success

SIZING CONTROL. Anon. *Instrumentation 1*, No. 2, 21 (1944). The Brown control system for size cooking and storage in textile mills is flexible, adaptable and easy to set, operated and reset. It permits better, more uniform sizing at lower cost than in absence of adequate control.

TEXTILE FINISHING MACHINES. K. S. Laurie, John Dalglish & Sons. *Institution Mech. Eng. J. and Proc.* 1944, 149-208; discussion 209-16. Constant speed drive of dyeing machine jiggers is possible with 2 small d. c. motors, one on each roll, more simply than with a differential drive. Automatic control of cloth feed now tends to utilize pneumatic and hydraulic systems. Modern drying has been adapted to the handling of very delicate fabrics and to drying without tension. Some improvements in calenders are described.

TREATING TEXTILES. Hans O. Kauffman (to Buffalo Electro-Chem. Co., Inc.). USP 2 357 262, Aug. 29. Continuously heating dampened textile goods in rope form by packing the goods as a seal in two separate chutes and introducing the heat in the space between the two sealed

chutes, while withdrawing the goods from the second chute at the same rate at which they are packed into the first chute.

TREATING TEXTILES. Christian F. Meyer (to Textile Machine Works). USP 2 358 344, Sept. 19. Apparatus for treating textiles by heat comprises a closed chamber having an automatic device for supplying a pressure heating medium while the door is closed and opening the door at a pre-determined time.

PROOFING

TEXTILE PROCESSES. Anon. *Monsanto Mag. 23,* No. 5, 4-7 (1944); *Textile Bull. 67,* No. 1, 24, 35 (1944). A treatment for making fabrics last longer and for preventing shine in serge, comprises deposition of colloidal quartz on the fiber from aqueous dispersions ("Syton" treatment). Another process known as "Reslooming" makes wool shrinkproof and wrinkleproof. A third new process renders cotton, rayon or wool water-repellent.

MILDEWPROOFING. Frank J. Sowa, Gallowhur & Co. *Textile Age 8,* No. 6, 50, 52, 54; No. 7, 62, 64-5 (1944). Organisms which attack textiles are discussed (bacteria and fungi). Chemical mildewproofing agents are cited which are effective against these organisms.

WATERPROOF STRANDS. Anthony I. Cidonio (to Schor Mfg. Co.). USP 2 357 503, Sept. 5. Waterproofing degummed silk or fibroin filaments by impregnation with a colloidal protein, partial drying, treatment with a salt solution and then with formaldehyde or dichromate and finally repeating the last two treatments.

FLAMEPROOFING. Harry Bennett. USP 2 357 725, Sept. 5. A flameproofing emulsion contains a rubbery chlorinated hydrocarbon, an aqueous solution of an inorganic fire retardant so that the fire retardant when applied to the material is protected from water by the continuous pliable film of binder.

WATER-REPELLENT FABRIC. Robert W. Maxwell (to E. I. du Pont de Nemours & Co.). USP 2 358 871, Sept. 26. Water resistance of fabrics is increased by impregnation with a dispersion of a monocarboxylate ester of the N-monomethylolamide of a monocarboxylic acid (8C or higher) and baking.

CLORAFIN (for proofing fabrics). Hercules Powder Co., Wilmington, Del. 1944. Reviewed in *Chem. Industries 55,* 422 (1944).

PROPERTIES OF MATERIALS

THERMAL CONDUCTIVITY. J. B. Garner, R. M. Stuchell and L. Adams, Mellon Inst. *Refrigerating Eng. 48,* 209-12 (1944); discussion, 212-3. A new method for testing heat insulating materials for low temperature service utilizes concentric spheres, the inner one surrounded by the test sample within the outer sphere. The inner sphere is electrically heated. Tests have been made with this apparatus at 32°F (crushed ice), 31°F (liquid n-butane),—44°F (liquid propane), —109°F (dry ice and ethanol) and—320°F (liquid nitrogen).

RESEARCH

RESEARCH. Anon. *Wool Record and Textile World 66,* 265, 267-8 (1944). Among the factors which explain the wide gap between existing knowledge and its application are inertia, intentional suppression of new knowledge in favor of existing practice, and the feeling that discoveries are profitable to big business but have little to offer for small business. A Bureau of Standards for the wool industry is recommended, partly for the reason that an important function of such a Bureau would be to narrow the gap between existing knowledge and its application in industry.

PHYSICS RESEARCH. Staff, USDA Southern Regional Research Laboratory. *J. Applied Phys. 15,* 629-41 (1944). Research in physics at the Southern Regional Laboratory includes textile testing; research on elastic and plastic behavior of textiles; cotton fiber studies; effects of textile finishes; spectroscopy of fibers; x-ray studies of fiber structure; thermal and thermodynamic properties of cellulose and other substances, and viscometry of cellulose solutions.

HANDBOOK OF CHEMISTRY. Norbert A. Lange, Editor. Handbook Publishers, Inc., Sandwsky, Ohio. Ed. 5, 1944; 2092 pp. Price $6.00. Reviewed in G. E. Rev. *47,* No. 8, 67 (1944).

SPINNING

RAYON DRAWING. James Chatfield, *Textile Age 8,* No. 8, 43-44, 46 (1944). For smooth even rayon drawing it is best to work with slivers weighing not over 55 grains to the yard, at roll speeds delivering not more than 10 to 11 pounds per hour. Roll and draft settings, atmospheric conditions and other factors must be adjusted for optimum results.

DRAWING APPARATUS. Arthur Walker. USP 2 357 243, Aug. 29. High-draft drawing apparatus for textile spinning and like frames has cap bars pivoted on cap brackets mounted on roller stands, with 3 top rolls, weighted apron rolls journalled in the cap bars, and 3 bottom rolls journalled parallel to the top rolls.

SPINNING BUCKET. Christel Pistor (to American Viscose Corp.). USP 2 357 422, Sept. 5. A spinning bucket is made up of segments which can be easily separated by releasing a holder confined within the outer periphery of the segments.

BUILDER MOTION. Louis M. Cotchett (to Saco-Lowell Shops). USP 2 357 580, Sept. 5. A builder motion for spinning and twister frames has a device which permits continuous operation; an adjuster for maintaining a specified time relation between the rate of shaft rotation and the adjusted device permits different winds to be produced as desired.

SLIVER BALLING MACHINE. Adam J. Stalker (to Textile Appliances Ltd.). USP 2 359 257, Sept. 26. A roll-forming or balling machine has a center on which a ball may be wound around a stationary axis, a cam and lever system for retracting the center to discharge a ball from the machine, a driving pressure roll which moves away from the winding axis to accommodate the increasing diameter of the ball, and partial side plates to support the sides of the ball during the balling period.

COMBING GUARDS. D. Pierrepont and Platt Bros. & Co. Ltd. Brit. P. 558 978-9, 1944. A guard to cover the moving parts in front of a comber has a spring-controlled detent to release a brake which is automatically applied on reverse movement of a rod arm shaft to stop the machine; and a brake and guard device at the back prevents starting while a suction box lid is open.

WEAVING

WEAVING. Anon. *Fibres, Fabrics & Cordage 11,* 293-4 (1944). Effects of noise on weaving output are discussed with particular reference to the chief causes of noise in looms, e. g. transmission, gearing, slay movement, shuttle and picking movement.

WARP AND WEFT PREPARATION. Anon. *Wool Record & Textile World 66,* 281-3 (1944). Direct winding from mule cops, particularly in medium and finer kinds of yarn, has certain disadvantages but effects a saving in labor which may be the deciding factor in the present labor situation. Weft winding can also be adapted to a system which permits the weft winder to tend more spindles and keep up with a larger number of looms.

SILK AND RAYON LOOM. J. W. Hutchinson. *Silk & Rayon 18,* 1002-3 (1944). Illustrated description of the new Butterworth-Dickinson 2 x 1 drop box loom for weaving silk and rayon. It can weave plain cloth on 8 shafts or may be altered to the 16 shaft setting with closed spiral springs or a spring lever under-motion.

DAMASK WEAVING. F. J. W. Shannon. *Fibres, Fabrics & Cordage 11,* 290-1 (1944). The London and Norwich system of harness mounting for damask or figure weaving are described. Design applications and transferring of designs are discussed.

JACQUARD LOOM. Shed Manager. *Silk & Rayon 18,* 886-9 (1944). Illustrated description of the design and operation of double-lift jacquard looms, with particular attention to setting and timing.

LOOM. Sterling W. Alderfer (½ to Edward D. Andrews). USP 2 356 964, Aug. 29. A loom has parallel cards with passages for warp threads near their outer edge, a creel from which warp threads are guided to each card, and a device for removing the twists imparted to the thread between the cards and the creel by rotating the cards while maintaining tension on the threads.

LOOM PICKER. Edwin K. Krueger. USP 2 357 010. Aug. 29. A loom picker has a loop with a wall composed partly or entirely of a resilient thermosetting plastic and an opposite opening in the wall to form bearings for a guide rod, while the other end of the loop has a guide lug with a shuttle point depression, and opposite it an opening to receive a picker stick strap.

LOOM CONTROL. Yervant H. Kurkjian, USP 2 357 336, Sept. 5. An improved device for automatic control of the let-off mechanism of looms.

WEAVING PATTERN. Carl P. Bergstrom (to Crompton and Knowles Loom Works). USP 2 357 448, Sept. 5. An improved pattern mechanism controls loom harnesses to produce a designated weave with different warp sheds on successive picks of the loom followed by similar sheds after which the weave is repeated.

SHUTTLE BOX. Benjamin W. Brouwer (to Crompton and Knowles Loom Works). USP 2 357 453, Sept. 5. A shuttle box for a weft replenishing loom has a gang of two vertical shuttle boxes, a floor for the upper one, a bobbin chute attached to the gang and an actuator connected to the bobbin chute.

PATTERN CONTROL. Allan S. Hutchins (to Crompton and Knowles Loom Works). USP 2 357 470, Sept. 5. A pattern control mechanism for looms has a device which enables the pattern chain to form two successive different warp sheds, but alters the control over one warp shed so that it is similar to the other warp sheds.

HEDDLE BAR SUPPORT. Author S. Holt. USP 2 358 288, Sept. 12. A support for the bars of a heddle frame has sliding clamps mounted on a headed bolt attached to a rail of the frame.

BOBBIN SELECTOR. Carl P. Bergstrom (to Crompton & Knowles Loom Works). USP 2 358 905, Sept. 26 A bobbin selector for weft replenishing looms is so arranged that a positioner moves the magazine so that stacks of reserve bobbin move into replenishing position one at a time and in a given sequence.

THREAD HOLDER. Richard G. Turner (to Crompton & Knowles Loom Works). USP 2 358 952, Sept. 26. A pneumatic thread holder for weft replenishing looms has a tube with an intake mouth separate from the opening across which the weft end of a transferred bobbin extends so that a vacuum can be established in the tube for moving the weft end into the air current thus drawn into the tube.

SHUTTLE GUARDS. H. Richmond. Brit. P. 558 905, 1944. A stationary guard rail to keep shuttles from escaping has arms in front of it with a guard rail pivoted to their lower end.

AUTOMATIC LOOM. Crompton & Knowles Loom Works. Brit. P. 558, 966, 1944. In a pick and pick waft mixing loom for fabrics of uniform

color and texture there are two weft mixers, the first of which activates the shuttles in a given order while the other supports groups of reserve bobbins and releases bobbins for successive replenishment in a specified order.

WEFT STRIPING. Crompton & Knowles Loom Works. Brit .P. 558 967, 1944. Automatic pick and pick looms has the arrangement as such that occasional decorative stripes can be woven into the fabric.

TAPERED BOBBIN. Clark Thread Co. Brit. P. 559 115, 1944. Taper-ended spools or bobbins are made with layers of yarn each having several thicknesses of thread wound to a specified length and thickness. Layers are alike in length but are offset at the base of the bobbin and at the end of the preceding layer. Difficulties caused by yarn uncoiling too freely near the base of the bobbin are overcome.

HOLDING LOOM REEDS. R. T. Hartley (to James Nelson, Ltd.). Brit. P. 559 430, 1944. A loom reed is firmly held in wedge-shaped seats in the reed-cap and slay, the baulks of the reed are also wedge-shaped but of coarser taper so that the contact lines are at the bottom of the reed-cap seat and at the top of the slay seat.

STIFFENING LOOM REEDS. C. A. Glover (to James Nelson Ltd.). Brit. P. 559 550, 1944. The baulks of a reed are made deeper so that the reed wires are stiffened and stronger or heavier cloths can be woven.

YARNS

COTTON YARN. G. Harris, *Textile Mfr. 70,* 339 (1944). In preparation of cotton yarn for weaving the kind and amount of starch applied and the proper use of sulphonated tallow or other surface-active compound are important factors. In some cases an exceptionally heavy squeeze roll gives a good effect, e. g. on a high twist yarn.

YARN NUMBERING. A. C. Scroggie, E. I. du Pont de Nemours & Co. *Silk and Rayon 18,* 927-8 (1944). The "Grex" Universal Yarn Numbering System is described as recommended by ASTM Committee D-13. Calculations are illustrated and comparisons are made with the denier.

STRETCHING YARN. T. Jackson and F. B. Hill (to British Celanese Ltd.). Brit. P. 558 958, 1944. A fluid treatment for stretching cellulose derivative yarns utilizes a closed chamber and an injector which produces a fluid current in the chamber. The first stretching chamber has an injector at one end and inlet orifices for the yarn.

STRETCHING RAYON. J. Jackson and T. B. Frearson (to British Celanese Ltd.). Brit. P. 558 963, 1944. Cellulose acetate thread is stretched in presence of a softener, taken up on a twister and winder and stretched first by the tension imparted on the winder, then under the positive control of rolls.

NYLON YARN. Imperial Chem. Industries, Ltd. Brit. P. 559, 369, 1944. A treatment for twist-setting in nylon comprises wet treating (135-190°F.) while the yarn is under sufficiently low tension to permit shrinkage. The treatment is especially useful for very lively yarns.

YARN DRYER. Harry S. Drum and W. C. Dodson (to Smith, Drum and Co.). USP 2 356 834, Aug. 29. A yarn dryer has a base manifold supporting yarn package spindles, which form air passages from the manifold to the interior of the yarn packages, and means for circulating hot air through and around the yarn packages.

WOOL-LIKE YARNS. Georg Rutishauser. USP 2 356 887, Aug. 29. Strongly curled, wool-like twisted yarns are made from endless threads by fluffing a fiber bundle of curled endless threads to at least 15 times its original volume, then converting the fiber mass to a yarn of curled endless threads without any drawing or stretching, but with a twisting and slight rounding effect.

BALING YARN. Herbert H. Almeroth and Fred Richardson (to British Ropes Ltd.). USP 2 357 864, Sept. 12. A package of binding or baling yarn is formed of fibers spun or twisted with a given lay and combined into a stand having its lay in the same direction; a sliding sleeve prevents unraveling but makes it easy to withdraw a length of the yarn from the sleeve for separation of the individual yarn components.

WINDING YARN. Ernest Koella (to Rockford Mfg. Co.). USP 2 358 076, Sept. 12. A winder for yarns has an enlarged shank and a reduced spindle, with a washer around one end of the spindle and shank and extending throughout the area of the yarn package support.

YARN WINDING. Alfred W. Arterton and William W. McConnell (to Foster Machine Co.). USP 2 358, 294, Sept. 19. Thread or yarn is wound into a barrel shaped package by laterally traversing and feeding the yarn on a rotating core while varying the length of the lateral traverse stroke and speeding up the lateral feed as the yarn winds toward the middle but slowing it down as the yarn winds toward the end.

SINGLE PLY YARN. Frank E. Nutter and Ernest I. Spence (to Goodall Worsted Co.). USP 2 358 656, Sept. 19. A single ply yarn of long and short fibers is spun by feeding to the back rolls 2 rovings, one of long fibers and the other of short fibers while operating the front drafting rolls at a surface speed producing about the same draft as the short fiber roving would normally receive in the "cotton" system and operating the back rolls at the surface speed which would also produce such a draft of the long fiber rovings.

YARN PACKAGE. George White to Courtaulds Ltd.). USP 2 358 752, Sept. 19. A traverse mechanism for winding yarn on a single-flanged bobbin has a thread guide arm, a main

cam and an auxiliary cam, with cam-operated devices to give a slow traverse speed and an accelerated traverse speed.

STAPLE FIBER YARN. W. J. Elvin and Bertie Shallis (to Celanese Corp. of America). USP 2 358 854, Sept. 26. An attachment to enable a twister or winder to produce continuous staple fiber yarn by abrasion of a traveling yarn has a yarn tensioning device on a bracket which also carries a pulley with an abrasive surface over which the yarn is caused to travel.

PHYSICAL AND CHEMICAL PROPERTIES OF TEXTILE NYLON YARN. E. I. du Pont de Nemours & Co., (Sales Section, Nylon Division), 1944; reprinted in *Textile Manufacturer 70,* 355-7 (1944).

Services To Readers

The primary purpose of "Textile Technology Digest" is to help readers keep currently informed of new technical developments. The abstracts are therefore written, as effectively as circumstances permit, to enable readers to decide whether they need to consult the original publication or patent.

The ITT library therefore endeavors to round out its abstracting service by supplying copies of the cited publications to readers who cannot conveniently obtain them elsewhere. Owing to the scarcity of competent help and to other limiting factors, the library cannot undertake an extensive program of supplying copies; readers are therefore requested to utilize other convenient sources when they can.

To assist readers in locating other sources and in utilizing the ITT library service when no other source is found, a detailed statement of the library's service to member mills will be issued with No. 5 (October) of "Textile Technology Digest" as a supplement for separate filing. Leading sources of printed copies, photo-prints and microfilm copies will be listed and official sources for copies of patents will be named.

The library's services will not be for profit. The charges necessary to sustain them will be listed in the printed supplement, separately for members and nonmembers excepting the services available only to members.